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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/635,945	08/10/2000	Setsuo Nakajima	SEL 203	5934

7590 04/27/2007
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EXAMINER

HU, SHOUXIANG

ART UNIT	PAPER NUMBER
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2811

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/27/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

09/635,945

Applicant(s)

NAKAJIMA ET AL.

Examiner

Shouxiang Hu

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 February 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 26-28 and 30-66 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 26-28 and 30-66 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 10/13/2006
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Election/Restrictions

Claims 51-66 withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 2/08/2007.

Specification

The disclosure is objected to because of the following informalities and/or defects:

On page 19 of the specification, lines 7 and 9, the terms of "tin oxide" should read as: --zinc oxide--.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 43-50, insofar as being supported by the elected species, are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that

the inventor(s), at the time the application was filed, had possession of the claimed invention. Claims 43-50 each recite the subject matters that a source wiring or first wiring is completely covered by the second insulating layer. However, full support for such subject matters cannot be found in the original disclosure for the elected species, because the recited source wiring or first wiring has a two-dimension or three-dimension structure, and the original disclosure lacks an adequate description regarding whether the recited source wiring or first wiring is covered completely by the recited second insulating layer along each of the two dimensions or the three dimensions, or at least along the entire length dimension and the width dimension, given that what is shown in Figs. 4A and 4B of the original disclosure only show an end portion of the recited source or first wiring (211) and it only shows that the end portion is covered by the second insulating layer (216) along one dimension.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 26-28 and 30-50, insofar as being in compliance with 35 U.S.C. 112, are rejected under 35 U.S.C. 103(a) as being unpatentable over Shin (US 5,825,449) in view of Hayashi (US 6,094,248).

Shin discloses a semiconductor device (Figs. 1a-1f; also see col. 1, lines 34-67), comprising: a substrate (1; glass); a thin film transistor comprising a gate electrode (2), a first insulating layer over the gate electrode, a channel forming region in an amorphous semiconductor layer (4), and doped source and drain regions (5); a second interlayer insulating layer (9; nitride, inorganic); a pixel electrode (6); a storage capacitor wiring ("20" and/or "2D"); and, a source input terminal portion (a source pad, also see the top row pads 640 in Fig. 6) including a first layer (2A) comprising the same material as that of the gate electrode (2) and a second layer (6A) comprising the same material as that of the pixel electrode in contact with the first layer through a contact hole formed only in the first insulating layer, wherein the gate electrode, the storage capacitor wiring layer and the first layer in the input terminal portion all have a tapered shape and are formed from a same conductive layer; and the storage capacitor wiring and a portion of the pixel electrode, with a portion of the first insulating layer disposed therebetween, inherently form a storage capacitor. The device further comprises a source (or first) wiring (7; also see source wiring 610 in Fig. 6), wherein a portion of the wiring (7) is formed over the source region (left side of film 5) and another portion of the source wiring (7) is formed on the second layer (6A) of the source input terminal portion. And, it is also noted that the second insulating layer (9) in Shin can be regarded as being naturally overlapping with the pixel electrode (6), as the second insulating layer (9) therein overlaps with at least a portion of the pixel electrode (6).

Shin does not expressly disclose that the gate electrode can comprise aluminum and that the pixel electrode can comprise indium, zinc and oxygen.

However, as evidenced in Hayashi (see col. 5, lines 43-53; and col. 7, lines 58-60), aluminum is one of most commonly used materials for forming the gate electrode, and In-Zn-O is one of most commonly used materials for forming the pixel electrode.

Therefore, it would have been obvious to one of ordinary skill in the art at the time invention was made to incorporate the art-commonly-used Al-gate electrode and Ti-Zn-O pixel electrode, such as the ones of Hayashi, into the device of Shin, so that a semiconductor device with desired materials and/or with improved material flexibilities for the gate and pixel electrodes would be obtained, since these materials are art-known ones that are respectively well suited for the intended uses, and it has been held that: The selection of a known material based on its suitability for its intended use supported a prima facie obviousness determination in *Sinclair & Carroll Co. v. Interchemical Corp.*, 325 U.S. 327, 65 USPQ 297 (1945).

Regarding claims 26-28, 30 and 35-38, it is noted that the storage wiring ("20" or "2D") in Shin can be regarded as being covered by the pixel electrode (6), as at least a portion of the storage wiring is directly covered vertically by the pixel electrode, and/or the storage wiring can be fully covered by the pixel electrode when view along certain directions/angles.

Regarding claims 39-42, although Shin and/or Hayashi do not expressly disclose that the device can be applied in one of the selected applications as recited in these claims, each of these recited application are art-known applications for an LCD device such as the one of Shin, in order to achieve better display performance with reduced size, as readily evidenced in the prior art such as Ikeda et al. (US 5,428,250; see col.1,

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lines 16-24). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to make the above semiconductor device collectively taught by Shin and Hayashi, and applied it to any of the art-known applications, so that a device in any of the applications with reduced size and/or with improved display performance would be obtained.

Regarding claims 43-50, insofar as being in compliance with 35 U.S.C. 112, it is noted that at least a portion of the source wiring (or first wiring; 7) in Shin completely covered by the second insulating layer (9) therein.

Response to Arguments

Applicant's arguments with respect to the above rejected claims have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the

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shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shouxiang Hu whose telephone number is 571-272-1654. The examiner can normally be reached on Monday through Friday, 8:30 AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard T. Elms can be reached on 571-272-1869. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

SH
April 19, 2007



SHOUXIANG HU
PRIMARY EXAMINER